

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A computer-implemented method for identifying one or more objects within an image, the method comprising:

receiving an image that includes two or more non-overlapping embedded images at least one object;

identifying a plurality of edge pixels in the image, an edge pixel based on a respective gradient value associated with each of the plurality of edge pixels; being a pixel that borders two contrasting areas of the image, the plurality of edge pixels including both inner edge pixels and outer edge pixels;

selecting an edge pixel from the plurality of edge pixels;

identifying a plurality of substantially connected edge pixels being substantially connected to the selected edge pixel; and

identifying a bounding area within the image, the bounding area surrounding finding a the plurality of substantially connected edge pixels connected component correlated with each object, the substantially connected component comprising a set of the edge pixels that are connected by traversing substantially only edge pixels.

2. (Cancelled)

3. (Currently Amended) The method of claim 1, wherein identifying a plurality of edge pixels includes computing [[a]] the respective gradient value for each of a plurality of pixels in the image.

4. (Currently Amended) The method of claim [[2]]3, wherein computing the respective gradient value for each of the a given plurality of pixels includes, for each pixel, comparing respective pixel colors in a of a neighborhood of pixels surrounding the given each pixel.
5. (Currently Amended) The method of claim [[2]]3, wherein computing the respective gradient value for each of the a given plurality of pixels includes using an image smoothing filter to filter noise from the image.
6. (Currently Amended) The method of claim 1, further comprising passing each component plurality of substantially connected edge pixels to a processor that extracts the-a location of an embedded image from the two or more non-overlapping images the object from the component.
7. (Currently Amended) The method of claim [[5]]6, further comprising refining the extracted location.
8. (Currently Amended) The method of claim [[6]]7, further comprising using the extracted location to crop the embedded image object from the image.
9. (Currently Amended) The method of claim 1, further comprising splitting the bounding area of the image into a first of the two or more non-overlapping embedded images and a second of the two or more non-overlapping embedded images a component into two components.
10. (Currently Amended) The method of claim 1, further comprising merging the bounding area within the image with another bounding area within the image two components into a single component bounding area.
11. (Currently Amended) The method of claim 1, further comprising:
extracting the-a location of each object of the two or more non-overlapping embedded images from the image; and
using the extracted object location to seed a crop operation.

12. (Currently Amended) The method of claim [[10]]11, wherein using the ~~extracted object~~ location to seed a crop operation includes:

for each ~~object~~of the two or more non-overlapping embedded images in the image, using the ~~extracted object~~ location to define a cropping area; and
cropping all the defined cropping areas in a single cropping operation.

13. (Currently Amended) The method of claim [[11]]12, wherein:

the ~~extracted object~~ location specifies ~~how an alignment of one of the two or more non-overlapping embedded images the object is aligned~~ with respect to the image; and
using the ~~extracted object~~ location to define a cropping area includes using the alignment of one of the two or more non overlapping embedded images~~of the object~~ to define ~~the an~~ alignment of the cropping area.

14. (Currently Amended) The method of claim [[11]]12, further comprising:

prior to cropping all the defined cropping areas, adjusting one or more of the defined cropping areas in response to user input.

15. (Currently Amended) The method of claim [[13]]12, further comprising:

~~prior to cropping all the defined cropping areas, wherein adjusting one or more of the defined cropping areas includes merging two of the defined cropping areas into a single defined cropping area in response to user input.~~

16. (Currently Amended) The method of claim [[13]]14, wherein adjusting one or more of the defined cropping areas includes splitting a single cropping area into two or more cropping areas.

17. (Currently Amended) A computer program product, tangibly stored on a computer-readable medium, for identifying one or more objects within an image, comprising instructions operable to cause a programmable processor to perform operations comprising:

receiving an image that includes two or more non-overlapping embedded images at least one object;

identifying a plurality of edge pixels in the image, an edge pixel based on a respective gradient value associated with each of the plurality of edge pixels; being a pixel that borders two contrasting areas of the image, the plurality of edge pixels including both inner edge pixels and outer edge pixels;

selecting an edge pixel from the plurality of edge pixels;

identifying a plurality of substantially connected edge pixels being substantially connected to the selected edge pixel; and

identifying a bounding area within the image, the bounding area surrounding finding a the plurality of substantially connected edge pixels. connected component correlated with each object, the substantially connected component comprising a set of the edge pixels that are connected by traversing substantially only edge pixels.

18. (Cancelled)

19. (Currently Amended) The product of claim [[16]]17, wherein identifying a plurality of edge pixels includes computing [[a]] the respective gradient value for each of a plurality of pixels in the image.

20. (Currently Amended) The product of claim [[18]]19, wherein computing the respective gradient value for each of the a given plurality of pixels includes, for each pixel, comparing respective pixel colors in a of a neighborhood of pixels surrounding the given each pixel.

21. (Currently Amended) The product of claim [[18]]19, wherein computing the respective gradient value for each of the a given plurality of pixels includes using an image smoothing filter to filter noise from the image.

22. (Currently Amended) The product of claim [[16]] 17, wherein the operations further comprise passing each component plurality of substantially connected edge pixels to a processor that extracts the-a location of an embedded image from the two or more non-overlapping images the object from the component.

23. (Currently Amended) The product of claim [[21]] 22, wherein the operations further comprise refining the extracted location.

24. (Currently Amended) The product of claim [[22]] 23, wherein the operations further comprise using the extracted location to crop the object embedded image from the image.

25. (Currently Amended) The product of claim [[16]] 17, wherein the operations further comprise splitting the bounding area of the image into a first of the two or more non-overlapping embedded images and a second of the two or more non-overlapping embedded images.a component into two components.

26. (Currently Amended) The product of claim [[16]] 17, wherein the operations further comprise merging the bounding area within the image with another bounding area within the imagetwo components into a single componentbounding area.

27. (Currently Amended) The product of claim [[16]] 17, wherein the operations further comprise:

extracting the-a location of each object of the two or more non-overlapping embedded images from the image; and

using the extracted object location to seed a crop operation.

28. (Currently Amended) The product of claim [[26]] 27, wherein using the extracted object location to seed a crop operation includes:

for each object of the two or more non-overlapping embedded images in the image, using the extracted object location to define a cropping area; and

cropping all the defined cropping areas in a single cropping operation.

29. (Currently Amended) The product of claim [[27]] 28, wherein:

the ~~extracted object~~ location specifies how an alignment of one of the two or more non-overlapping embedded images ~~the object is aligned~~ with respect to the image; and
using the ~~extracted object~~ location to define a cropping area includes using the alignment of one of the two or more non overlapping embedded images ~~of the object~~ to define ~~the~~ an alignment of the cropping area.

30. (Currently Amended) The product of claim [[27]] 28, wherein the operations further comprise:

prior to cropping all the defined cropping areas, adjusting one or more of the defined cropping areas in response to user input.

31. (Currently Amended) The product of claim [[29]] 28, wherein the operations further comprise:

prior to cropping all the defined cropping areas, wherein adjusting one or more of the defined cropping areas includes merging two of the defined cropping areas into a single defined cropping area in response to user input.

32. (Currently Amended) The product of claim [[29]] 30, wherein adjusting one or more of the defined cropping areas includes splitting a single cropping area into two or more cropping areas.

33. (Currently Amended) A computer program product, tangibly stored on a computer-readable medium, for identifying multiple objects within a scanned image, comprising instructions operable to cause a programmable processor to perform operations comprising:

receiving a scanned image that includes multiple non-overlapping embedded images~~objects~~; and

identifying the multiple non-overlapping embedded images~~objects~~ by:

(1) generating an edge pixel map of the image based on a respective gradient value associated with each pixel in the scanned image, the edge pixel map identifying each pixel in the scanned image as being an edge pixel or a non-edge pixel, an edge pixel being a pixel that borders two contrasting areas of the image having a gradient value above a threshold value;

(2) scanning the edge pixel map until an edge pixel is found;

(3) computing identifying a connected component containing the edge pixel, the connected component being a set of edge pixels that are connected by traversing only adjacent edge pixels;

(4) extracting one of the multiple non-overlapping embedded images~~objects~~ from the based on the connected component;

(5) erasing from the edge pixel map all the edge pixels that belong to the connected component or that correspond to pixels inside ~~are enclosed by~~ the extracted one of the multiple non-overlapping embedded images~~object~~; and

(6) repeating steps (2) through (5) until no more edge pixels are found.